

Amendments to the Claims:

The following listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) A workpiece inspection system comprising a machine tool which has a controller operable to perform a workpiece producing process and a workpiece inspection process, the workpiece inspection process comprising the steps of:

mounting a workpiece measurement device on the machine tool;

changing the position of the workpiece relative to the workpiece measurement device;

issuing time based synchronisation signals defining a plurality of instants;

causing measurements of the workpiece to be recorded which in particular involves:

recording a first data set from at least one first sensor comprising varying data ~~relating to~~ representing the position of the ~~machine;~~ workpiece measurement device; and

recording a second data set from at least one second sensor separate from the at least one first sensor comprising varying measurement data ~~from the measurement device relating to measurements of the workpiece;~~ concerning the workpiece as detected and output by the workpiece measurement device,

_____ wherein the synchronisation signals are used in the recording of the first and second data sets such that simultaneous ~~machine position and measurement device position~~ and workpiece measurement device measurement data can be determined and subsequently ~~combined.~~ combined;

_____ combining data from the first and second data sets based on the synchronisation signals so as to obtain at least one instance of simultaneous measurement device position and workpiece measurement device measurement data so as to obtain a measurement at a location on the workpiece; and

_____ using the measurement to refine the workpiece producing process.

2. (Original) A workpiece inspection system as claimed in claim 1 wherein the synchronisation signal issues from the controller.

3. (Currently Amended) A workpiece inspection system as claimed in claim 1 in which the synchronisation signals are used to label at least some of the recorded ~~machine~~ measurement device position data and/or workpiece measurement device measurement data in the first and second data sets such that simultaneous ~~machine~~ measurement device position data and workpiece measurement device measurement data can be determined and subsequently combined.

4. (Previously Presented) A workpiece inspection system as claimed in claim 1 wherein the measurement device is monitored at intervals which are more frequent than the occurrences of the said instants and only selected data is recorded to the second set and/or the data is manipulated prior to its recording.

5. (Previously Presented) A workpiece inspection system as claimed in claim 1 wherein the system further includes software for combining the data of the first and second sets.

6. (Currently Amended) A workpiece inspection system as claimed in claim 1 wherein the system further includes an interface circuit which accepts the synchronisation ~~signal~~ signals and the varying data from the workpiece measurement device.

7. (Currently Amended) A workpiece inspection system as claimed in claim 1 wherein the system includes a stop signal path from the workpiece measurement device ~~to the~~ to a machine controller and the machine controller can be configured to stop the ~~machine~~ workpiece measurement device if a stop signal is received by the machine controller.

8. (Original) A workpiece inspection system as claimed in claim 1 wherein the measurement device is a contact type dimensional measurement probe and the varying data relates to changes in the deflection of a workpiece contact stylus connected to the probe.

9. (Original) A workpiece inspection system as claimed in claim 5 wherein the first set of data is corrected to at least reduce positional errors of the machine tool, prior to combination with the second set.

10. (Previously Presented) A workpiece inspection system as claimed in claim 1 wherein the first and/or second sets of data are manipulated such that the manipulated data represents approximately the data which would have been obtained had the elements of two sets been recorded simultaneously.

11. (Original) A workpiece inspection system as claimed in claim 1 wherein the controller issues a further signal which enables the recording of the second set.

12. (Original) Software for controlling a workpiece inspection system according to the steps claimed in claim 1.

13. (Currently Amended) A workpiece inspection system comprising a machine tool having a first part, a second part movable relative to the first part, and a controller operable to perform both a workpiece production process and a workpiece inspection process and for producing varying data ~~relating to~~ representing the relative position of the first and second parts, the system comprising also a workpiece measurement device attached to the second machine part for producing varying measurement data ~~relating to measurements of the workpiece~~ and a synchronisation signal producer, the system being operable such that the following workpiece inspection steps are performed:

mounting the workpiece measurement device on the second part of the machine tool;

changing the position of the workpiece relative to the workpiece measurement device;

issuing synchronisation signals defining a plurality of instants;

causing measurements of the workpiece to be recorded which in particular involves:

recording a first data set from at least one first sensor comprising varying machine position data relating to the relative representing the position of the first and second parts of the machine; workpiece measurement device mounted on the second part;

recording a second data set from at least one second sensor separate from the at least one first sensor comprising varying workpiece measurement device measurement data from the measurement device relating to measurements of the workpiece; concerning the workpiece as detected and output by the workpiece measurement device,

—————wherein the synchronisation signals are used in the recording of the first and second data sets such that simultaneous machine position data and workpiece measurement device measurement data can be determined and subsequently ~~combined~~ combined;

—————combining data from the first and second data sets based on the synchronisation signals so as to obtain at least one instance of simultaneous measurement device position and workpiece measurement device measurement data so as to obtain a measurement at a location on the workpiece; and

—————using the measurement to refine the workpiece producing process.

14. (Previously Presented) A workpiece inspection system as claimed in claim 5, wherein the system further includes software for influencing the workpiece producing process performed at the controller of the machine tool on the basis of the combined data.

15. (New) A workpiece inspection system as claimed in claim 1, wherein the second data set includes varying workpiece interaction data from the workpiece measurement device.

16. (New) A workpiece inspection system as claimed in claim 1, wherein the second data set represents deflection of the workpiece measurement device.